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EXAMINER	
GODBOLD, DOUGLAS	

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/731,929

Applicant(s)

KEMP ET AL.

Examiner

Douglas C. Godbold

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20031210.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to application 10/731,929 filed on December 10, 2003. Claims 1-11 are pending in the application and have been examined in this office action.

Priority

2. This application claims priority to European application 02 027 964.2 filed December 13, 2003. This priority date has been considered in this application.

Information Disclosure Statement

3. The Information Disclosure Statement filed December 10, 2003 has been considered in this office action.

Specification

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.

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- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.
- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

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- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

4. The disclosure is objected to because of the following informalities: The proper form for a specification is not followed.

Appropriate correction is required.

Claim Objections

5. Claim 11 objected to because of the following informalities: A computer readable medium cannot "comprise" a program. The examiner suggests using "storing" or "containing" or "embodying". Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding claim 10, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 10 attempts to claim a computer program product. This however can be interpreted to be mere computer code, which is non-statutory under 35 U.S.C. 101. Therefore claim 10 is rejected as being non-statutory.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1, 2, 9, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (Recognition of Negative Emotions from the Speech Signal).

13. Consider claim 1, Lee teaches a method for processing speech (This paper reports on methods for automatic classification of spoken utterances based on the emotional state of the speaker; page 240, column 2, lines 3-4.), comprising the steps of:
receiving a speech input of a speaker (The speech data used in the experiments was obtained from real users engaged in a spoken dialog with a machine agent over the telephone; page 241, column 1, lines 5-7.),

generating speech parameters from said speech input (In our experiments, we computed only acoustic features such as pitch and energy related features from the speech signal; page 241, column 2, lines 46-47.),

determining parameters describing an absolute loudness of said speech input (The acoustic features chosen for emotion recognition comprised utterance-level statistics obtained from the pitch and energy information of the signal. These included mean median, standard deviation, maximum and minimum for energy; page 241, column 1, lines 57-61. Energy is the amplitude, and therefore the loudness of the signal.),

evaluating said speech input and/or said speech parameters using said parameters describing the absolute loudness (This paper reports on methods for automatic classification of spoken utterances based on the emotional state of the speaker; using utterance level features; page 240, column 2, lines 3-13.).

14. Consider claim 2, Lee teaches a method according to claim 1, wherein the step of evaluation comprises a step of emotion recognition (This paper reports on methods for automatic classification of spoken utterances based on the emotional state of the speaker; page 240, column 2, lines 3-4.).

15. Consider claim 9, Lee teaches a speech processing system, which is capable of performing or realizing a method for processing speech according to claim 1 and/or the

steps thereof (The implementation of the experiment described by Lee makes it inherent that a speech processing system was used.).

16. Consider claim 10, Lee teaches a computer program product, comprising computer program means adapted to perform and/or to realize the method of processing speech according to claim 1 and/or the steps thereof, when it is executed on a computer, a digital signal processing means, and/or the like (Section 2, speech data preparation discusses aligning digital speech data into a database, and indicator that the method was executed on a computer of signal processing means.).

17. Consider claim 11, Lee teaches a computer readable storage medium, comprising a computer program product according to claim 10 (It is inherent that computer code must be stored somewhere in order to be executed by a computer.).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Gable et al. (US PAP 2005/0060153).

21. Consider claim 3, Lee teaches the method according to claim 1 but does not specifically teach wherein the step of evaluation comprises a step of speaker identification.

In the same field of speech processing, Gable teaches a step of speaker identification using similar acoustic features as described by Lee (Verification parameters represent the individuality of the speaker, containing information about the timing, pitch, amplitude or spectral content of the speech; paragraph 0027. Abstract discusses using these features for speaker verification.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide speaker identification as taught by Gable, with the speech processing of Lee in order to provide a method of further classifying a speech signal beyond emotional classification.

22. Claims 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Brandstein et al. (Microphone Array Localization Error Estimation with Application to sensor Placement).

23. Consider claim 4, Lee teaches a method according to claim 1 but does not specifically teach wherein a microphone array comprising a plurality of microphones is used for determining said parameters describing the absolute loudness.

In the same field of speech processing, Brandstein teaches using a microphone array comprising a plurality of microphones (see figure 6) for determining said parameters describing the absolute loudness (Existing array systems have been used in a number of applications. These include teleconferencing, speech recognition, speaker identification, speech acquisition in an automobile environment, sound capture in reverberant enclosures, large room recordings, conferencing, acoustic surveillance, and hearing aid devices; page 1 lines 11-15. Obviously, the array of microphones would be used to determine the parameters including loudness needed for these applications.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a microphone array as taught by Brandstein with the speech processing system of Lee in order to provide a means for provide a high quality signal of the desired speaker (Introduction, Brandstein.).

24. Consider claim 5, Lee teaches a method according to claim 1 but does not specifically teach wherein a location and/or distance of the speaker is determined.

But in the same field of speech processing Brandstein teaches determining a location and/or distance of the speaker (Section 2 discusses using a microphone array

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with a time difference of arrival algorithm to determine a location of a speaker; pages 3-5.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a microphone array for source location as taught by Brandstein with the speech processing system of Lee in order to provide a means for provide a high quality signal of the desired speaker (Introduction, Brandstein.).

25. Consider claim 6, Lee teaches a method according to claim 1 but does not specifically teach that the absolute loudness is determined using algorithms for auditory and/or binaural processing.

In the same field of speech signal processing, Brandstein teaches that the absolute loudness is determined using algorithms for auditory and/or binaural processing (Page 21 teaches modeling a source as a cardioid radiator, wherein the source amplitude is a function of distance from the source. When this information is combined with the source locating algorithms of section 2, one can obviously estimate the amplitude at the source itself given the amplitude at the microphone array.).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of level determination as suggested by Brandstein with the speech processing of lee in order to provide a more accurate representation of the actual level at the source providing a better means for more accurately categorizing a speech signal.

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26. Consider claim 7, Brandstein teaches a method according to claim 5, characterized that said absolute loudness is computed by normalizing a measured loudness, or energy by said distance (Page 21 provides a relationship of a source amplitude as a function of distance and angle from the source. This relationship could obviously be used to normalize an amplitude value to estimate the amplitude at the source.)

Consider claim 8, Brandstein teaches Method according to claim 5, characterized in that said distance is determined using the time delay of the speech input between said plurality of microphones (Section 2 discusses using a microphone array with a time difference of arrival algorithm to determine a location of a speaker; pages 3-5.)

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is listed on the Notice or References Cited


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas C. Godbold whose telephone number is (571) 270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG



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